MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2013/2014

FIRST YEAR SECOND SEMESTER EXAMINATIONS FOR THE
DEGREE OF MASTER OF EDUCATION IN PLANNING &
ECONOMICS OF EDUCATION

(MAIN CAMPUS)

EMA 843: QUANTITATIVE TECHNIQUES IN EDUCATION PLANNING I

Date: 17th April, 2014   Time: 9.00 - 12.00 noon

INSTRUCTIONS:

- Answer Question ONE (COMPULSORY) and any other TWO questions.

EMA 843: QUANTITATIVE TECHNIQUES IN EDUCATION PLANNING I

DATE--- TIME------------------------------------

INSTRUCTION:

ANSWER THREE QUESTIONS: QUESTION ONE IS COMPULSARY

Q1. The figure below indicates the enrollment for secondary schools in Kericho County according to EMIS from 2005 to 2009

FORM

	1	2	3	4	Graduates
2005	33,789 2,453	32,569 2,233	31,562 2,220	31,438 1,922	30,344
2006	35,561 2,312	34,554 2,241	31,995 2,134	31,643 2,022	30,431
2007	40,443 2,423	39,111 2,342	35,661 2,123	31,344 2,143	30,234
2008	42,321 2,587	42,361 2,432	34,543 2,352	30,564 2,213	30,432
2009	43,676 2,923	42,311 2,899	40,456 2,900	38,345 2,399	37,222

If in each box the upper data represent total enrolment and the lower data represents repeaters. Calculate approximately to three decimal places.

(i) Actual form survival rates in 2005/2006. **(4marks)**

(ii) Actual Repeaters rates for each form in 2005/2006. **(4marks)**

(iii) Actual Graduation rates for each of the years 2005 – 2009 **(4marks)**

(iv) Actual form dropout rates for 2006 cohort **(4marks)**

(v) Actual Crude wastage rates for the year 2005 and 2006 **(4marks)**

Q2. (a) Discuss the implication of true cohort, apparent cohort and reconstructed cohort in assessment of internal efficiency **(10 marks)**

(b) Discuss the implication of Educational Management Information System (EMIS) to education planning **(10 marks)**

Q3. Use the following demographic data and Sprague multipliers (provided at the end of this question paper) 1 to calculate the population in ages 4, 6, 11, 12 and 15. **(20marks)**

Age group	population
0-4	3,211,376
5-9	3,134,211
10-14	3,555,456
15-19	3,125,435
20-24	2,894,667
25-29	1,799,435
30 – 34	1,703,147

Q4. Using the enrollment data in question one, calculate

(i) weighted average survival and graduation rates 2005 cohort **(6 marks)**

(ii) Weighted average repeater rates in 2005 cohort **(6 marks)**

(iii) Average number of years spent per graduate for 2005 and 2006

(5 marks)

(iv). The number of teachers for the years 2007, 2008 and 2009 were 234, 423 and 563 respectively. Determine student – teacher ratio for the three years.

(3 marks)

Q5. Calculate, using the equation $PE \times AIE^n = PP \times AIP^n$ in how many years will full enrolment be achieved with alternate annual increases in enrolment of 4%, 5%, $6\frac{1}{2}$%, $7\frac{3}{4}$ and 9% if present enrolment is 3,362,443 present population (age group corresponding to that level) is 3,900,121 and the estimates annual population growth rate = 3 ½ %. Show the results in a table.

(20marks)

SPRAGUE MULTIPLIERS

	F-2	F-1	F0	F+1	F+2	F+3
First table						
Fa			+0.3616	-0.2768	+0.1488	-0.0336
Fb			+0.2640	-0.0960	+0.0400	-0.0080
Fc			+0.1840	+0.0400	-0.0320	+0.0080
Fd			+0.1200	+0.1360	-0.0720	+0.0160
Fe			+0.0704	+0.1968	-0.0848	+0.0176
Second table						
Fa		+0.0336	+0.2272	-0.0752	+0.0144	
Fb		+0.0080	+0.2320	-0.0480	+0.0080	
Fc		-0.00800	+0.2160	-0.0080	+0.0000	
Fd		-0.0160	+0.1840	+0.0400	-0.0080	
Fe		-0.0176	+0.1408	+0.0912	-0.0144	
Intermediate table						
Fa	-0.0128	+0.0848	+0.1504	-0.0240	+0.0016	
Fb	-0.0016	+0.0144	+0.2224	-0.0416	+0.0064	
Fc	+0.0064	-0.0336	+0.2544	-0.0336	+0.0064	
Fd	+0.0064	-0.0416	+0.2224	+0.0144	-0.0016	
Fe	+0.0016	-0.0240	+0.1504	+0.0848	-0.0128	